

**Material Specifications – 16  
for  
MAGNETIC DRIVE DISPLACEMENT TYPE WATER METERS  
1-1/2 INCH THROUGH 2 INCH**

**1. GENERAL:**

All magnetic drive displacement type water meters, 5/8-inch through 2-inch, furnished under this Standard, shall be manufactured in strict accordance with the latest edition of AWWA C700, C707 and C702 with the following additional requirements. The meter may be of a nutating disc or oscillating piston type. Meter sizes 1-1/2-inch and 2-inch shall be designed for easy removal of internal parts without disturbing the connections to the pipeline or removal of the meter. Stainless steel mounting bolts and flange gaskets shall be furnished with each 1-1/2-inch and 2-inch meter.

**2. MAIN CASES/FLANGES:**

Main cases shall comply with NSF/ANSI 61 requirements. Flanges for 1½-inch and 2-inch meters shall be two hole, oval type and shall not have slotted holes. The flanges shall be an integral part of the main case and shall be of the same material. Flanges shall not be removable from the main case. A test port will be supplied at the outlet of the meter equipped

**3. REGISTERS/REGISTER BOXES:**

Register and register boxes shall comply fully with the requirements of [MS-15](#).

**4. METER NUMBERS:**

The Denver Water meter number shall be plainly chisel stamped on the meter main case and on brass register caps. This meter number shall be heat stamped in a contrasting color on plastic register caps. The Denver Water meter number shall be attached to the meter in a bar code form 39 using a separate tag. Dimple type stamping methods and paper or plastic number labels affixed to the register are not acceptable.

**5. BOTTOM PLATES:**

For 5/8-inch through one inch meters, bottom plates shall be of a breakable design made of cast iron. The cast iron bottom plates shall be coated with baked enamel, to an extent adequate to protect the cast iron from corrosion, and shall be provided with a plastic line, which shall not prevent the bottom plate from breaking as designed.

**6. PISTON/DISC SPINDLES, THRUST ROLLERS, AND THRUST ROLLER BEARING PLATES:**

Piston/disc spindles, thrust rollers, and thrust roller bearing plates shall be of monel or stainless steel in accordance with AWWA C700, or suitable engineering plastic.

**7. CHAMBERS:**

Chambers shall be made of copper alloy containing not less than 85% copper or suitable engineering plastic.

**8. MEASURING CHAMBER DIAPHRAGMS:**

Measuring chamber diaphragms shall be of monel, stainless steel or suitable engineering plastic.

**9. DRIVE SPINDLE:**

Up shaft or drive spindle shall be stainless steel or suitable engineering plastic. Driving pawl and magnet shall be securely fastened to drive spindle in a manner preventing loss of pawl during normal operation of the water meter.

**10. EXTERNAL FASTENERS:**

All external fasteners shall be stainless steel as described in AWWA C700.

**11. TESTS CERTIFICATIONS:**

All meters shall comply with American Water Works Association test requirements for new coldwater displacement type water meters. Each meter shall be furnished with a tag attached to the meter displaying the results of the certified accuracy tests performed by the manufacturer. This tag shall identify the meter by the manufacturer's meter number, the Denver Water meter number, and a bar code representation in form 39 of the Denver Water meter number.

**12. ELECTRONIC DOCUMENTATION:**

As noted above, the meter shall have a firmly attached tag documenting the manufacturer's serial number, the Denver Water meter number, a bar code representation of the Denver Water meter number, manufacturer's certified test results, and other identifying characteristics such as nominal size, manufacturer, meter model number, register type and model, etc. Each shipment of meters shall be accompanied by a CD-ROM or USB drive containing a file with this information in tabular form for uploading into Denver Water's meter inventory system.

**13. ACCEPTABLE MANUFACTURERS AND MODELS:**

Badger Meters, Inc.: Recordall Disc Series Meter with RTR Pulser register (may be used with Badger Summator/Splitter)

Sensus Metering Systems: SR or SRII Sealed Register Meter with ECR or ICE encoder register programmed to Denver Water's specific requirements (1-1/2 inch and 2 inch only)

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